

USSR

UDC: 517.946

BYKOV, Ya. V., KIRIY, K. A., Krasnodar Polytechnical Institute

"Concerning Branchings of the Solutions of One Class of Nonlinear Partial Differential Equations"

Minsk, Differentsial'nyye Uravneniya, Vol 8, No 9, Sep 72, pp 1627-1638

Abstract: The authors consider sufficient conditions of solvability of the problem

$$U(x_0, y) = u(x, y_0) = 0^*$$

for the equation

$$L[u] = \frac{\partial^2 u(x, y)}{\partial x \partial y} - Au(a, y) - Bu(x, b) = f(x, y) + \mu F(x, y, u(x, y), \mu);$$

where μ is a small parameter; a, b, A, B, x_0, y_0 are constants; $F(x, y, u(x, y), \mu)$ is a nonlinear operator which is analytical with respect to $u(x, y)$ and the parameter μ ; in particular,

$$F(x, y, u(x, y), \mu) = F_1(x, y, u(x, y), u(a, y), u(x, b), \mu).$$

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BYKOV, Ya. V., KIRIY, K. A., *Differentsial'nyye Uravneniya*, Vol 8, No 9, Sep 72, pp 1627-1638

where $F_1(x, y, u_1, u_2, u_3, \mu)$ is an ordinary function which is analytical with respect to the arguments u_1, u_2, u_3, μ . The functions $J(x, y)$, $F(x, y, \omega, \mu)$ are continuous in the closed bounded region D .

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USSR

UDC 517.925.32

BYKOV, Ya. V., KIRIY, K. A., Krasnodar Polytechnical Institute

"On Periodic Oscillations With a Large Amplitude. I"

Minsk, Differentsial'nyye Uravneniya, Vol. 8, No. 6, Jun 72, pp 943-952

Abstract: Sufficiency conditions are studied for the existence of periodic solutions of the system of differential equations

$$L[u] = \frac{du}{dt} - Au = f(t) + \sum_{n=1}^{\infty} \mu^n \sum_{k=1}^{m:n} F_{nk}(t) u^k(t), \quad (1)$$

that can be represented in the form

$$u(t, \mu) = \sum_{k=0}^{\infty} v_k(t) \mu^{\frac{k-p}{m-p+r}} \quad (v_0(t) \neq 0), \quad (2)$$

where $m > 0$ is a fixed number, $F_{nk}(t)u^k(t)$ is a k -linear operation mapping

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BYKOV, Ya. V., KIRIY, K. A., *Differentsial'nyye Uravneniya*, Vol. 8, No. 6, Jun 72, pp 943-952

the periodic vector $u(t)$ into a periodic vector, $f(t)$ is periodic, u is a small parameter, $F_{nk}(t)h_1(t) \dots h_k(t)$ is a symmetric k -linear operation, p and $r > 0$ are some whole numbers, f and u are l -dimensional vectors, and A is a constant $l \times l$ matrix. The set of periodic functions represented in form (2) is called class $\Gamma(p, r)$. The amplitudes of periodic solutions of class $\Gamma(p, r)$ increase without limit as $m \rightarrow 0$. This paper studies the existence of periodic solutions in classes $\Gamma(1, 4)$, $\Gamma(1, 5)$, and $\Gamma(1, r)$. Theorems are presented showing conditions under which equation (1) does or does not have periodic solutions in each of these classes.

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USSR

GABASHVILI, N. V., KIRIYA, T. A., CHACHASHVILI, A. G., CHKHAIDZE, L. L.

"Use of Methods of Mathematical Programming for Optimization of Drilling Modes"

Primeneniye Metodov Matematicheskogo Programirovaniya dlya Optimizatsii Rezhimov Bureniya [English Version Above], Tbilisi, Metsniyereba Press, 1971, 96 pages, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V480 K).

NO ABSTRACT.

USSR

UDC 681.3

KIRIYENKO, G. I.

"Synthesis of Self-Adjusting Circuits of Functional Elements for the Case of Growing Number of Errors in the Circuit"

Diskretn. Analiz. [Discrete Analysis -- Collection of Works], No 16, Novosibirsk, 1970, pp 38-43, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V570 by O. Belkin).

Translation: Certain problems of synthesis of self-adjusting circuits of functional elements are studied, when the number of defects is fixed. It was shown earlier that in this case, the requirements for self-correction do not asymptotically influence the complexity of the system. It is noted in this work that this fact also obtains for the case when the number of defects in the system is a function of the number of arguments, increasing more slowly than the exponents.

USSR

UDC 546.74,77:620.182.2

KIRIYENKO, V. I., POPLAVSKAYA, E. E., and POTAPOV, L. P., Institute of the Science of Metals and Physics of Metals of the Central Institute of Ferrous Metallurgy imeni I. P. Bardin

"Effect of Alloying Elements on Ordering in Nickel-Molybdenum Alloys"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 33, No 6, Jun 72, pp 1260-1266

Abstract: A study was made of the effect of 2.09-2.39 at.% V on the ordering mechanism in nickel alloys with ~19 at.% Mo and on the character of the effect of 1.34 at.% Nb. The results are analyzed on the basis of hardness evaluations, roentgenographic investigations, and direct observation of the atomic structures of alloys by autoionization microscopy. The introduction of V produced a strong retardation of isothermal transformations, most strongly expressed at 800°C. Alloying with V and Nb widens the domain of the (α -Ni₃Mo) diagram of state into the low-temperature side, changing the Ni₃Mo transformation temperature. Hypotheses are suggested for a probable retardation mechanism of transformation processes. Four figures, eight bibliographic references.

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USSR

UDC 669.15-196:[62-762:621.165]

DOROSHENKO, N. P., KIRIYEVSKIY, B. A., and TIKHONOVICH, V. I., Engineers

"New Materials for Feed Pump Slit Seal Parts"

Moscow, Khimicheskoye i Neftyanoye Mashinostroyeniye, No 11, Nov 70, pp 24-25

Abstract: The Institute of Casting Problems of the Academy of Sciences, Ukrainian SSR has studied the problem of creation of a material corresponding to the operational requirements of delivery pumps for slit seal parts. These studies have indicated that the most promising material is chromium cast iron. In cooperation with the Ukrainian Scientific Research Institute for Hydraulic Machinery, the Institute has developed a new modified chromium cast iron in which the carbide lattice is broken up by modifiers during treatment of the liquid melted cast iron, thus decreasing the quantity of primary carbides and their dimensions. The modifier, located primarily on the grain boundaries, prevents diffusion of chromium from the grains, so that the content of chromium in the matrix increases to at least 10.26%. Laboratory and test stand studies have shown that this cast iron has improved operational qualities, wear-resistance, antifriction properties, and resistance to scarring and seizing.

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USSR

UDC: 51

KIRILYEVSKIY, L. A.

"Duality in Complex Mathematical Programming"

Tr. 4-y Zimn. shkoly po mat. programmir. i smezh. voprosam, 1971, vyp. 2
(Works of the Fourth Winter School on Mathematical Programming and Related Problems, 1971, No 2), Moscow, 1971, pp 32-44 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V404)

Translation: A complex analog of the Farkash theorem and the theorem of duality of complex linear programming is formulated. The principal result is two theorems of duality for convex programming in the complex case.
M. Dubson.

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UNCLASSIFIED

PROCESSING DATE--03JUL70

TITLE--TREATMENT OF TRICHOMONIASIS OF THE UROGENITAL ORGANS WITH THE 2ND
FRACTION OF ASD CPG -U-

AUTHOR--YEGANCY, YE.P., KIRKIN, YE.M.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK DERMATOLOGII I VENEROLOGII, 1970, NR 1, PP 71-73

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--GENITOURINARY SYSTEM DISEASE, DRUG EFFECT, PARASITIC DISEASE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1979/C873

STEP AC--UR/C206/70/000/001/0071/0073

CIRC ACCESSION AC--APCC47347

UNCLASSIFIED

16
5
21

Acc. Nr: AP0047347

Ref. Code: UR 0206

PRIMARY SOURCE: Vestnik Dermatologii i Venerologii, 1970,
Nr 1, pp 71-73

TREATMENT OF TRICHOMONIASIS OF THE UROGENITAL ORGANS WITH THE
2nd FRACTION OF ASD DRUG

Yeganov, Ye. P.; Kirkin, Ye. M.

Summary

Because of difficulties of treatment of trichomoniasis of the urogenital organs we began in 1961 studies of the therapeutic effect of the 2nd fraction of ASD drug in this disease. Observations of many years have shown that 2-5% solutions of ASD in furaciline (1:5000) are highly effective in treatment of trichomoniasis. The cure is achieved within the first 4-6 days. In neglected cases of genital trichomoniasis in women another 4-day course of treatment is required. No untoward effect of the treatment was observed. Laboratory studies showed that trichomonads die after 1-1 1/2 min. of action of 1% solution of the 2nd fraction of ASD.

The high effectiveness of this treatment permits it be recommended for practical application.

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USSR

UDC 539.893:548.733

ALYAMOVSKIY, V. N., KIRKINSKIY, V. A., FURSENKO, B. A.

"High-Pressure X-Ray Chamber"

Moscow, Pribery i Tekhnika Eksperimenta,

No 6, 1971, pp 166-169

Abstract: A new high-pressure x-ray chamber is described which is similar to one introduced earlier [S. S. Kabalkin, et al., Dokl. AN SSSR, Vol 176, No 5, 1044, 1967]. The new chamber permits Debye powder diagrams of substances to be obtained under conditions of quasihydrostatic compression to 200 kilobars. The chamber is simple to manufacture and is distinguished by complete autonomy and small size. The primary advantages of the proposed design include the following: 1) it is simple to manufacture; 2) it is completely autonomous; 3) it is small in size; 4) it is convenient to install on series x-ray equipment inasmuch as an awkward hydraulic press is not required to create forces; 5) it is possible to maintain constant pressure in the sample for a prolonged period of time as opposed to hydraulic systems in which the force decreases noticeably during exposures of 24-48 hours as a result of leakage of the working fluid through the seals; 6) self-centering of the anvils relative to each other and relative to the cartridge with the photographic film; 7) automatic satisfaction of the condition of parallelness of the operating surfaces of the anvils; 8) the possibility of combining high pressures with shears in the

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1/2 013 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--BEHAVIOUR OF SILVER IN ALKALI ON ANODIC POLARIZATION BY AN
ASYMMETRIC CURRENT -U-
AUTHOR--(03)--KAZAKEVICH, G.Z., KIRKINSKY, V.A., YABLOKOVA, I.YE.
COUNTRY OF INFO--USSR
SOURCE--ELEKTROKHIMIYA, MAR. 1970, 6, (3), 361-365
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--SILVER, X RAY DIFFRACTION, ANODE POLARIZATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/0304 STEP NO--UR/0364/70/006/003/0361/0365
CIRC ACCESSION NO--AP0124063
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0124063

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOME SPECIAL CHARACTERISTICS OF THE BEHAVIOUR OF AG ELECTRODES IN ALKALI SOLUTIONS ARE DESCRIBED IN CONTINUATION OF EARLIER WORK IN THE SAME FIELD (IBID., 1966, 2, 1055). ON APPLYING AN ASYMMETRIC CURRENT, TO POLARIZE THE ELECTRODE ANODICALLY, TWO DIFFERENT FORMS OF TETRAGONAL OXIDE ARE CREATED ON THE SURFACE; THESE DIFFER IN POLARIZATION BY VIRTUE OF THEIR DIFFERING TEXTURE AND PARTICLE SIZE. IT IS ALSO POSSIBLE, THOUGH NOT CERTAIN, THAT SMALL QUANTITIES OF A MONOCLINIC OXIDE MAY ALSO BE FORMED; THESE (IF PRESENT) ARE INSUFFICIENT TO DETECT BY X RAY DIFFRACTION.

UNCLASSIFIED

USSR

UDC 538.4

KIRKO, G. Ye.

"Phenomenon of Extraction of a Magnetic Field From the Area of Formation of the α -effect"

7-ye Soveshch. po Magnit. Gidrodinamike. T. 1 [Seventh Conference on Magnetic Hydrodynamics, Vol 1], Riga, Zinatnye Press, 1972, pp 196-198, (Translated from Referativnyy Zhurnal, Mekhanika, No 11, 1972, Abstract No 11 B2 by L. M. Baltin).

Translation: The possibility is studied of existence of a top limit on the so-called α -effect as concerns magnetic Reynolds number, caused by extraction of the magnetic field from the area of motion of the conductive medium. The system of conduction bands moving in the longitudinal magnetic field $B = (0; 0; B_0)$ is studied. It is assumed that a solution of the problem has spatial periodicity λ . Computer calculations show that as $R_m \rightarrow \infty$, the value of H_x (H_x is the field induced along the Ox axis) approaches a certain constant value. A similar result was produced with another method of formation of the α -effect, for which a certain material conducting column of 1/2

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UDC 538.4

KIRKO, G. Ye., 7-ye Soveshch. po Magnit. Gidrodinamike. T. 1, Riga, Zinatnye Press, 1972, pp 196-198.

width $2a$ was studied, along which, as in the preceding case, the homogeneous magnetic field was directed. It is assumed that within the limits of this column a standing transverse wave of circular polarization is formed, creating an induced current. The expressions produced for the field induced along the x and y axes show that the induction decreases by several orders of magnitude where $R_m > 10$.

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USSR

UDC: 621.319.7:532.529.5

KIRKO, I. M. and NOVIKOV, V. N.

"Utilization Limits of the Dipole Approximation for Dielectrophoresis Computation"

Riga, Izvestiya Akademii Nauk Latvyskoy SSR, No 1, 1972, pp 18-24

Abstract: From the formula for the pondermotive force acting on a dielectric in an electric field with a dielectric permeability differing from that of the surrounding medium, the formula for the first dipole approximation is obtained. A second formula is derived for the pondermotive force by considering the electric field in which the dielectric is placed to be formed by two plates at an angle to each other. The authors of the present paper describe experiments to check these two formulas. In the experiments, the force acting on a paraffin sphere in a wedge-shaped condenser formed by two electrode plates is determined. To the plates is applied a high voltage, measured by a kilovoltmeter, and the sphere hangs between them by a capron thread. The mass of the sphere is 14.691 ± 0.0005 grams in a volume of $16.392 \pm$

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USSR

KIRKO, I. M. et al, Izvestiya Akademii Nauk Latvyskoy SSR,
No 1, 1972, pp 18-24

0.005 cm³, and the thread has a diameter of $2.5 \cdot 10^{-3}$ cm and a length of 2.3 m. With voltages of from 2000 to 28,000 v applied to the plates, the sphere deviates from its natural position. The deviation is measured by an optical system. A diagram of the experimental setup is given, together with curves for the dielectrophoretic force as a function of different variables.

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USSR

UDC 621.391.19

ZHURAVLEV, V. F., KIRKOROV, N. I., and MOROZ, S. M., Minsk Radio Engineering Institute

"Method of Forming Similarity Measures in Pattern Recognition"

USSR Authors' Certificate No 363105, Cl. G 06k 9/00, filed 9 Mar 71, published 20 Dec 72 (from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 3, 1973, p 101)

Abstract: The method.-- based on the conversion of physical characteristics into electric signals, a comparison of them with reference signals, and the accumulation of the difference signals obtained from a comparison of them with a threshold signal-- is unique in that to reduce the recognition error probability, after the signals are compared with the reference signals, the difference signals are compared with each other, the resultant signals of the excess are summed according to the K-th attribute for the reference signals of each class, and the resultant sums are accumulated for a subsequent comparison of them with the threshold signal.

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USSR

UDC 621.397.132:621.397.331.2

MALKIYEL', B. S., MIZYUK, M. G., KIRLAN, V. N., MISHCHUK, N. A.

"Miniature Kinescope for Color Television"

Moscow, Tekhnika kino i televideniye, No. 7, 1971, pp 68-69

Abstract: The color kinescope described in this article is meant for individual viewing or as control-room monitor. It uses a system of color division with subsequent focusing, and magnetic switching of the beam produced by a single electron gun in the tube base. A longitudinal cross section of the tube, indicating its general construction, is sketched. The image measures 60 mm along the diagonal, the angle of the electron beam deflection is 40° , and the diameter of the tube neck is 13 mm. An explanation of the tube's operation is given. Two curves are given from which the permissible ripple in the supply voltage for the tube for obtaining pure colors can be estimated. A photograph of the tube together with its basic specifications is reproduced on the inside rear cover of the journal.

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USSR

UDC 615.9:611-018.5

KIRLICH, A. Ye. Laboratory of Pesticide Toxicology, Institute of Nutrition,
Academy of Medical Sciences SSSR

"The Effect of Maneb on the Morphological Composition of Blood in White Wistar
Rats in Chronic Experiments"

Kishinev, Zdravookhraneniye, No 3, May/Jun 70, pp 11-14

Abstract: Maneb is one of the new, effective pesticides derived from dithiocarbamino acid. Since it is generally believed that mane b affects blood and hemato-poietic tissue, while only leukopenia has been demonstrated, the morphological composition of blood was studied during chronic mane b intoxication in white rats. Daily doses of 5, 10, and 30 mg of mane b per kg of body weight were administered perorally for 12 months. In four to seven months, the rats displayed a tendency to increase erythrocyte and hemoglobin counts, followed by a decrease in both these indices in the 11th and 12th months of the experiment. Progressive leukopenia with neutropenia and relative lymphocytosis developed throughout the experimental period.

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USSR

UDC 621.396.2

OKELYSHEV, K.B., KIRMASOV, I.M. (Members Of The Scientific-Technical Society Of Radio Engineering, Electronics, And Communication imeni A.S. Popov)

"Experimental Determination Of The Statistical Characteristics Of A Shortwave Channel"

Radiotekhnika, Vol 27, No 3, Mar 1972, pp 36-41

Abstract: An experimental study is made of the correlation functions of the envelope and phase of a shortwave signal reflected from the ionosphere. The non-modulated signals of precise time and standard frequency emanating from the Moscow Precise Time Station served as working signals. The daytime wave corresponded to a frequency of 15 MHz and the nighttime to 2.5 MHz. The basic route was oriented to the south and had a length of 1200 km. The receiving unit together with the recording equipment is described. The statistical characteristics of the envelope and phase and the cross-correlation of the envelope and phase are determined. 12 fig. 1 tab. 10 ref. Received 5 May 70.

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1/2 008 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--CONFORMATION FEATURES OF PEPTIDE FRAGMENTS CONTAINING PROLINE
RESIDUES -U-
AUTHOR--(04)-GALAKTIONOV, S.G., SHERMAN, S.A., KIRNARSKIY, L.I.,
NIKIFOROVICH, G.V.
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKAD. NAUK BELORUSS. SSR 1970, 14(3), 236-9
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--PEPTIDE, FRACTIONATION, PROLINE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3003/0883 STEP NO--UR/0250/70/014/003/0236/0239
CIRC ACCESSION NO--AT0129952
UNCLASSIFIED

2/2 008 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AT0129952
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY USING A MORE COMPACT MATH.
EXPRESSION THAN USUALLY EMPLOYED, THE CONFORMATIONAL FEATURES OF 2 TYPES
OF MOLS. CONTG. PROLINE RESIDUES WERE MAPPED USING EXISTING DATA FOR THE
MATRIX APP. OF EYRING. FACILITY: INST. TEPLC-MASSOOB MENA,
MINSK, USSR.

UNCLASSIFIED

USSR

UDC 581.1:032+581.116

KOTLYAR, V. Z., LYUBINS'KIY, M. A., and KIRNOS, P. S., Institute of Plant Physiology, Academy of Sciences Ukr. SSR

"The Origin of Transpiration Water and Pathways of Heavy Water (D_2O) Movement in Leaf Tissues"

Kiev, Ukrain's'kiy Botanicheskniy Zhurnal, Vol 17, No 6, Nov/Dec 70, pp 776-778

Abstract: Water enriched with D_2O was introduced through the roots into horse bean (*Vicia faba*), red pepper (*Capsicum annum*), and common cucumber (*Cucumis sativus*) plants. Within definite time intervals, the content of deuterium was determined in the transpiration water from the upper and lower sides of leaves, water of the epidermis of the upper and lower sides of leaves, and water of the mesophyll adjacent to the epidermis. The deuterium content in transpiration water 23-30 hrs after immersion of the roots into labeled water was higher as a rule than that in water of leaf tissues. This indicated that the water eliminated by transpiration moved chiefly through the extracellular free space of leaf tissue outside the protoplasts.

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Forming

USSR

UDC 621.983.1:673.664

KOMAROV, A. D., RYBYKH, A. A., SHADRIN, V. K., and KIROV, F. V.

"Stamping Sheet Parts with Polyurethane"

Moscow, Kuznechno-Shtampovochnoye Proizvodstvo, No 9, Sep 73, pp 26-29

Abstract: The use of polyurethane cushions along with or instead of rubber cushions, due to their better properties, is described in the forming of aluminum alloys (D16AM, Al6AT, AMTsM, AMg6M, and AMg3M), stainless steels, and titanium alloys of different thicknesses depending on the class of the formed parts (straight-line edges, small and large curvature convex sides, and small and large curvature concave sides). The class of straight-line edges allows thicknesses of 5, 1.5, and 1.2 mm to be stamped for Al, stainless steel, and Ti parts; small radius of curvature permits thicknesses of 3, 1.2, and 1 mm, respectively for Al, stainless, steel and Ti to be stamped; while for a large radius of curvature the thicknesses are 2 mm for Al and 1.2 for stainless steel (thickness not given for Ti). For straight-line stamping no manual finishing is required while for the other two classes, a small amount of manual finishing is required. During 1971-72, 4,727 parts were produced by stamping in a rubber-polyurethane container with a pressure up to 800 kgf/cm^2 ,
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KOMAROV, A. D., et al., Kuznechno-Shtampovochnoye Proizvodstvo, No 9, Sep 73, pp 26-29

and almost 3,000 items were converted to cutting production using the same technology. The overall economic effect from introduction of cutting and forming processes in the described container, in conjunction with developed technology and equipment, amounted to 613,500 rubles/year. Six figures, 12 bibliographic references.

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KIROV, S.M. UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 1-70

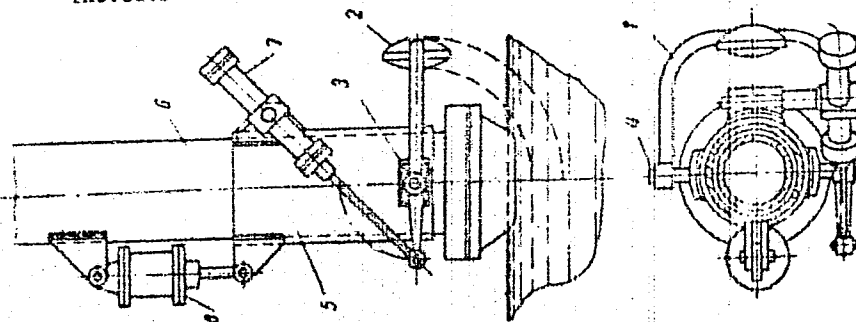
238735 VACUUM SUCTION CASTING UNIT comprises the holder (1) with the tray (2) designed as a bracket carried on journals (3) (4). These in turn are carried diametrically on the sleeve (5) surrounding the mould itself (6). The holder is turned on its journals to bring the tray in under the mould. The ram (8) forces the tray to the mould spout by raising the sleeve (5).

Ural'skiy Politekhnikheskiy Institut imeni S. M. Kirova

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URAL POLYTECHNIC. (19.8.69) Bul 10/10.3.69. Class 316
Int.Cl.B 22d.



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UDC 541.183

USSR

KIROVSEAYA, I. A., LOBANOVA, G. L., STAROVOYTENKO, L. M., Tomsk
State University imeni V. V. Kuybyshev

"Adsorption of Water Vapor on Gallium Arsenide"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 45, No 9, 1971, p 2374

Abstract: Adsorption of water vapor on finely ground powder of n- and p-gallium arsenide single crystals was determined in a static vacuum apparatus at 0-200°C, and $2.25-4 \cdot 10^{-3}$ mm Hg pressure. The amount of adsorption on both n- and p-type samples was of the same order of magnitude (10^{-5} a mmol/sq.m.) and adsorption isobars indicated reversibility of the process. Heats of adsorption, calculated for the cited ranges of temperature and pressure, were in the 0.31-6.4 kcal/mol range and approximately equal for n- and p-type samples. The concave adsorption isotherms at a small coverage are described by the Langmuir equation with adsorption constants in the 60-150°C range equal to $(1.6-7.2) \cdot 10^{-4}$ and $(2-40) \cdot 10^{-4}$ for n- and p-gallium arsenide, respectively. The experimental data indicate a preferential adsorption of water

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USSR

KIROVSKAYA, I. A., et al, Zhurnal Fizicheskoy Khimii, Vol 45,
No 9, 1971, p 2374

molecules by Ga atoms with formation of H_2O^+ and Ga^- , hence a reversible chemisorption. Also a better interpretation of the adsorption mechanism of hydrogen-oxygen mixture by gallium arsenide is made possible.

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Luminescence

USSR

UDC 541.183

~~KIROVSKAYA, I. A.~~, and FILIMONOVA, V. M., Tomsk State University imeni
V. V. Kuybyshev

"Adsorption of Carbon Dioxide on Monocrystals of Gallium Arsenide"

Moscow, Zhurnal Fizicheskoy Khimii, Vol XLV, No 11, Nov 71, pp 2809-2812

Abstract: Since heterogenic-catalytic reactions proceed mostly on crystal contacts, their mechanism is best understood by assessing the role of the crystallographic characteristics of the surface planes. The authors studied experimentally the adsorption of CO_2 (as part of the reaction of formic acid dissociation) on variously oriented faces of GaAs monocrystals. Adsorption was studied in the $-50 - +350^\circ\text{C}$ temperature range and the $0.05 - 1.0$ mm Hg pressure range. Data obtained indicate that physical and chemical irreversible adsorption occurs for the temperature and pressure ranges mentioned.

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USSR

KIROVSKAYA, I. A., LOBANOVA, G. L., STAROVOYTENKO, L. M.

"Adsorption of Water Vapors on Gallium Arsenide"

Adsorbtsiya Parov Vody na Arsenide Galliya [English Version Above], Moscow, 1971, 8 pages (Translated from Referativnyy Zhurnal, Khimiya, No 3, 1972, Abstract No 3 B1488 Dep. by the author's).

Translation: A volumetric-gravimetric method is used to study the adsorption of water vapor on electron and hole specimens of GaAs in the 0-200° temperature interval and $2.25-4.1 \cdot 10^{-3}$ mm pressure interval. The adsorption isobars are descending curves, indicating the reversible nature of the process. With slight fillings, the adsorption isotherms follow the Langmuir equation and indicate that with increasing filling, tangential interactions occur in the adsorbed layer. The Clapeyron-Clausius and Bering-Serpinskiy equations are used to calculate the heats of adsorption, 0.3-6 kcal/mol in the temperature interval studied. A mechanism of adsorption of H₂O vapors is suggested, which agrees with statements made earlier on the nature of adsorption of mixtures of H₂ and O₂ on gallium arsenide.

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UDC 541.183

USSR

LOBANOVA, G. L., KIROVSKAYA, I. A., and MAYDANOVSKAYA, L. G. (deceased),
Toms State University imeni V. V. Kuybyshev

"Simultaneous Adsorption of Hydrogen and Oxygen on Gallium Arsenide"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 45, No 8, Aug 71, p 2101

Translation: The paper presents the results of a study of adsorption of $H_2 + O_2$ mixtures on a GaAs semiconductor. The absorbent was a finely dispersed powder (specific surface $0.3 \text{ m}^2/\text{g}$, weight 1.4 g) produced by pulverising a single crystal. The experiments were done in a statistical vacuum installation with an attainable vacuum of $5 \cdot 10^{-6} \text{ mm}$. The total gas pressure and its mixture for various ratios of components was $0.31\text{--}0.99 \text{ mm}$ at temperatures from -183 to 375°C .

According to the resultant data, the most active component of the $H_2 + O_2$ mixture is oxygen. The degree of adsorption α of the gas mixtures occupies an intermediate position between α_{H_2} and α_{O_2} and increases with an increase in the concentration of the most active component, O_2 . At a ratio of $H_2:O_2 = 1:2$ and temperatures above 150°C , the value of α becomes larger than the value for the adsorption of oxygen. Basically, the curves for the adsorption

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LOBANOVA, G. I., et al., Zhurnal Fizicheskoy Khimii, Vol 45, No 8, Aug 71, p 2101

isobars of $H_2 + O_2$ mixtures behave in the same manner as for oxygen adsorption. In the interval from -183 to $300^\circ C$, equilibrium is reached in the system in about 30 minutes. At temperatures above $300^\circ C$, considerable time (more than a day) is required to reach equilibrium. The kinetic curves are quite complex and cannot be described by a single law.

On the basis of the above facts as well as calculations of heats of adsorption (by various methods) the authors make the following statements concerning the mechanism of the investigated phenomenon. In the interval from -183 to $0^\circ C$ physical adsorption takes place, while chemisorption predominates at higher temperatures. Chemisorption is accompanied by a chemical reaction of the components which shows up most noticeably above $300^\circ C$. During the reaction of H_2 and O_2 , the formation of a "dead-end" compound H_2O is noted as well as temperature conditions for retention of water on the surface. Oxygen is first to occupy the active sections on the surface. Hydrogen adsorption can take place on free sections and on

2/3

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USSR

LOBANOVA, G. I., et al., Zhurnal Fizicheskoy Khimii, Vol 45, No 8, Aug 71,
p 2101

sections occupied by oxygen, which is most readily ionized at relatively high temperatures: oxygen facilitates adsorption of hydrogen, and hydrogen adsorption then becomes predominant.

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USSR

UDC 541.183

KIROVSKAYA, I. A., MAYDANOVSKAYA, L. G., KNYAZEVA, E. I.,
MURZINA, G. D., NAGOVITSINA, V. N., Tomsk State University imeni
V. V. Kuybyshev, Tomsk, Ministry of Higher and Secondary Specialized
Education RSFSR

"Adsorption of CO on Semiconductors of the Zinc Blend Type"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 44, No 5, May 70,
pp 1260-1266

Abstract: A study is reported on the adsorption of carbon monoxide on semiconductors of the isoelectronic series of germanium: Ge, GaAs, ZnSe, and CuBr. Kinetics of the adsorption on all of these compounds was studied as well as the desorption kinetics of CuBr. Heats of adsorption of CO were calculated for several temperatures by the Clayperone-Clausius equation of the Bering-Sperpinski type, using empirical functions determined by the authors. A relationship was found between the chemosorptive activity and the width of forbidden zone ΔU of the above semiconductors: with the increase of ΔU the heat of adsorption is decreased, the temperature of the beginning of activated adsorption is increased as is the energy of $1/2$

USSR

KIROVSKAYA, I. A., et al, Zhurnal Fizicheskoy Khimii, Vol 44, No 5, May 70, pp 1260-1266

activation. Relative adsorption coefficients were determined for several temperatures. An assumption was made that the adsorption of CO occurs on one of the lattice atoms of given semiconductors forming surface structures of the type of linear structure carbonyls. In the case of binary compounds the active center becomes the atom which is included in the lattice in the form of a negatively charged ion.

2/2

USSR

UDC 541.183

KIROVSKAYA, I. A., MAYDANOVSKAYA, L. G., KNYAZEVA, E. I.,
~~MURZINA, G. D.~~, NAGOVITSINA, V. N., Tomsk State University imeni
V. V. Kuybyshev, Tomsk, Ministry of Higher and Secondary Specialized
Education RSFSR

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USSR

KIROVSKAYA, I. A., et al, Zhurnal Fizicheskoy Khimii, Vol 44, No 5, May 70, pp 1260-1266

activation. Relative adsorption coefficients were determined for several temperatures. An assumption was made that the adsorption of CO occurs on one of the lattice atoms of given semiconductors forming surface structures of the type of linear structure carbonyls. In the case of binary compounds the active center becomes the atom which is included in the lattice in the form of a negatively charged ion.

2/2

1/2 017 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--ADSORPTION OF MIXTURES OF GASES OF SIMILAR AND DIFFERENT ELECTRON
NATURES ON ISOLELECTRONIC ANALOGS OF GERMANIUM -U-
AUTHOR--KIROVSKAYA, I.A.
COUNTRY OF INFO--USSR *K*
SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 159-65
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--GERMANIUM COMPOUND, ADSORPTION, ARSENIDE, ZINC, SELENIDE,
FORBIDDEN ZONE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1993/0292 STEP NO--UR/0076/70/044/001/0159/0165
CIRC ACCESSION NO--AP0113222
UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NU--AP0113222

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ISOBARS AND KINETICS OF ADSORPTION OF MIXTS. OF CO PLUS H SUB2 AND CO PLUS O ON POWD. GAAS AND ZNSE WERE MEASURED AT MINUS 180 TO 300DEGREES. ELEC. COND. OF SAMPLES WAS DETD. IN VACUUM AND IN THE PRESENCE OF CO, H, AND O. ACTIVATION ENERGIES OF ADSORPTION, ADSORPTION HEATS, AND ENTROPY CHANGES WERE CALCD. THE FOLLOWING PROCESSES ARE SUGGESTED FOR EXPLAINING THE EXPTL. DATA: (1) COMBINED ADSORPTION OF THE COMPOS.; (2) THEIR INTERACTIONS; AND (3) ADSORPTION OF THE PRODUCTS. TEMP. AND THE COMPN. OF THE MIXTS. CHANGE PART OF EACH PROCESS. THE CORRELATION BETWEEN ADSORPTION CATALYTIC PROPERTIES, WIDTH OF THE FORBIDDEN ZONE, AND HEATS OF THE FORMATION OF THE ADSORBENTS ARE GIVEN. FACILITY: TOMSK. GOS. UNIV. IM. KUIBYSHEVA, TOMSK, USSR.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--ADSORPTION OF MIXTURES OF CARBON MONOXIDE WITH OXYGEN ON GALLIUM
ARSENIDE -U-
AUTHOR--(02)--KIROVSKAYA, I.A., ZHUKOVA, V.D.
COUNTRY OF INFO--USSR *K*
SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 155-8
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--GALLIUM ARSENIDE, CARBON MONOXIDE, GAS ADSORPTION, OXYGEN
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FAME--1993/0293 STEP NO--UR/0076/70/044/001/0155/0158
CIRC ACCESSION NO--AP0113223
UNCLASSIFIED

272 021 UNCLASSIFIED PROCESSING DATE--09OCT70
CIRC ACCESSION NO--AP0113223
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ISOBARS AND KINETICS OF ADSORPTION
OF A MIXT. OF CO AND O SUB2 WERE INVESTIGATED ON POWD. GAAS AT MINUS
180 TO 300DEGREES. ELEC. COND. OF THE ADSORBENT IN VACUUM AND IN (CO)
IS TO (O SUB2) EQUAL 5.53 IS TO 1 WAS DETD. THE ACTIVATION ENERGY AND
ADSORPTION HEATS WERE CALCD. BY DIFFERENT METHODS. FOR EXPLANATION OF
THE DATA, 3 PROCESSES WERE SUGGESTED: (1) COMBINED ADSORPTION OF CO AND
O SUB2; (2) THE REACTION: CO PLUS ONE-HALF O SUB2 EQUAL CO SUB2; AND
(3) ADSORPTION OF CO SUB2. TEMP. CHANGES STRONGLY AFFECT EACH OF THE
PROCESSES. FACILITY: TOMSK. GOS. UNIV. IM. KUIBYSHEVA, TOMSK,
USSR.

UNCLASSIFIED

USSR

UDC 669.716:621.785.3

BOCHVAR, O. S., KUNYAVSKAYA, T. M., KIRPA, I. G., PCHELIN, A. T., and
EKHINA, Ye. V.

"The Effect of the Initial Macrostructure of the Ingot on the Weakening Character In Annealing Sheets of Industrial Aluminum"

Metallovedeniye Splavov Legkikh Metallov-Sbornik, Moscow, "Nauka", 1970, pp 11-15, resume

Translation: Effects of the type of macrostructure of the initial ingot, the size of the macrograin, and also the relation of iron and silicon admixtures after annealing on the mechanical properties and structure of cold-rolled aluminum sheets after annealing are discussed. The hereditary effect of the type of cast structure of the ingot on the microstructure of annealed sheets is demonstrated, as is the effect of macrostructure grain sizes of initial ingots on the shift in temperature of the beginning of intensive weakening. Two figures, one table.

1/1

USSR

UDC 612.6.02:612.79.017.1-06:576.8

KIRPATOVSKIY, I. D., and STANISLAVSKIY, Ye. S., Organ and Tissue
Transplantation Laboratory, USSR Academy of Medical Sciences
and Moscow Institute of Vaccines and Sera imeni I. I. Mechnikov

"Immunodepressive Effect of a Bacterial Extract in Skin
Allotransplantation in Mice"

Moscow, Eksperimental'naya Khirurgiya i Anesteziologiya, Vol 1,
Jan/Feb 71, pp 51-53

Abstract: Immunological tolerance to skin allotransplants, to
exogenous erythrocytes, and to Salmonella typhi was induced.
Laboratory mice served as donors and recipients of skin grafts.
The bacterial extract was prepared by grinding a suspension of
nonpathogenic strains of E. coli, centrifuging the samples, and
collecting the supernatant fluid. With properly graded and
timed injections of the bacterial extract, the survival time of
the skin grafts on treated mice was 2.5 times longer than on
control mice. A chart was compiled, indicating the optimum doses
and periods of extract injections for the purpose of prolonging
1/2

USSR

KIRPATOVSKIY, I. D. and STANISLAVSKIY, Ye. S., Eksperimental'naya Khirurgiya i Anesteziologiya, Vol 1, Jan/Feb 71, pp 51-53

the survival of skin grafts. The extract suppressed the primary and secondary immunological responses to sheep erythrocytes. The extract decelerated production of antibodies against Salmonella typhi after the first inoculation but was ineffective after the second experimental infection.

2/2

1/2 024 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--ANATOMO TOPOGRAPHICAL BASES OF SURGICAL RESTORATION OF LYMPH LIVER
OUT PATHWAYS OR THE DOG AFTER ORTHOPADIC TRANSPLANTATION -U-
AUTHOR--(02)--KIRPATOVSKIY, I.D., VOLODKO, V.P.

COUNTRY OF INFO--USSR

SOURCE--EKSPERIMENTAL'NAYA KHIRURGIYA I ANESTEZIOLOGIYA, 1970, NR 2, 36-41

DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LIVER FUNCTION, LYMPHATIC SYSTEM, AUTOPSY, DOG, BIOLOGIC
STAIN, BLOOD CIRCULATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1990/0643

STEP NO--UR/0481/70/000/002/0036/0041

CIRC ACCESSION NO--AP0108854

UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0108854

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTS ON 42 CADAVERS OF DOGS WEIGHING FROM 10 TO 35 KG IN WHICH LYMPHATIC VESSELS AND REGIONAL LYMPH LIVER NODES WERE ISOLATED AND PRELIMINARILY FILLER WITH THE GEROTHE'S BLUE MASS OR LATEX, STAINED DIFFERENTLY. EXPERIMENTS ON DOGS SHOWED THAT THE BEST PATHWAYS FOR RESTURING THE LIVER LYMPH OUTFLOW AFTER TRANSPSLANTS IS A LIVER NODE, WHICH RECEIVES LYMPHATIC VESSELS OF ALL THE LIVER LOBES IMMEDIATELY OR THROUGH ANASTOMOSES BETWEEN VESSELS. THE MAIN LIVER NODE, CONSTANT, LAGE IS BEHIND THE PORTAL VEIN, BETWEEN THIS VEIN AND THE RENAL ARTERY. EXPERIMENTALLY ORTHOPEDIC TRANSPLANTS OF THE LIVER WITH ANASTOMOSES OF THE MAIN HEPATIC LYMPH NODES OF THE DONOR AND OF THE RECIPIENT HAVE BEEN PERFORMED. FACILITY: KAFEDRA OPERATIVNOY KHIRURGII UNIVERSITETA DRUZHBY NARODOV IM. P. LUMUMBY, LABORATORIYA PO PERESADKE ORGANOV I TKANEY AMN SSSR AND KAFEDRA TOPOGRAFICHESKOY ANATOMII MOSKOVSKOGO MEDITSINSKOGO STOMATOLOGICHESKOGO INSTITUTA.

UNCLASSIFIED

USSR

UDC: 681.121.842

KIRPATOVSKIY, S. I.

"Concerning the Selectivity and Additivity of a Compressing Transducer"

Kontrol'no-izmerit. tekhnika. Resp. mezhved. nauch.-tekhn. sb. (Monitoring and Measurement Technology. Republic Interdepartmental Scientific and Technical Collection), 1971, vyp. 11, pp 140-149 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 6, Jun 72, Abstract No 6.32.602)

Translation: The author considers the concept of selectivity of a flowmeter and the concept of additivity of flowrates and flowmeters. A compressing transducer is analyzed as a pickup for monitoring a gas-liquid flow. It is concluded that it is possible in principle to use a compressor as part of a two-component flow-meter for monitoring a gas-liquid flow. A block diagram of such a flowmeter is given. It is shown that experimental study of a compressor on heterogeneous flows as one of the pickups in a multicomponent flowmeter is a timely problem. Three illustrations, bibliography of five titles.

1/1

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USSR

UDC 661.3:621.791

K
KIRPATYY, V. A., Engineer

"4th All-Union Conference on the Welding of Heterogeneous Metals"

Moscow, Svarochnoye Proizvodstvo, No 6, Jun 70, pp 59-60

Abstract: The Fourth All-Union Conference on the Welding of Heterogeneous Metals was held by the Institute of Electric Welding imeni Ye. O. Paton of the Academy of Sciences Ukrainian SSR from 27 to 29 January 1970. The Conference was attended by 280 delegates from 160 organizations. Fifty-six reports and communications were presented and discussed. The conference opened with a report by D. M. Rabkin (Institute of Electric Welding) dealing with problems of the further refinement of welding technology for heterogeneous metals, new aspects of bimetal compositions, and the development of new welding techniques using special heating sources. Brief accounts are also given of other reports and papers on the welding of heterogeneous metals and related problems.

1/1

USSR

UDC 541.127.128:547.241

LITVINENKO, L. M., TITSKIY, G. D., STEPKO, O. P., and KIRPENKO, N. P.,
Donetsk Branch of the Physical Organic Chemistry, Institute of Physical
Chemistry Imeni L. V. Pisarzhevskiy, Acad. Sc. Ukrainian SSR and Donetsk
State University

"Oxygen-Nucleophilic Catalysis of the Organophosphorus Acids With Amides.
The Effect of the Structure of the Catalyst and of the Acylated Arylamine
on the Catalytic Process"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 8, Aug 73, pp 1794-
1799

Abstract: The investigation was carried out on the structural effects of
N,N-dimethylamides of several phosphoric and phosphinic acids in respect to
their catalytic activity in the acylation reaction of various arylamines
with benzoyl chloride in benzene at 25°. Utilizing correlation analysis it
was shown that N,N-dialkylamides of the organophosphorus acids act as oxygen-
nucleophilic catalysts, analogously to phosphorus oxides.

1/1

1/2 022 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--CORTICAL EVOKED POTENTIALS IN MOTOR CONDITIONING IN MAN -U-

AUTHOR--KIRPICHENKO, A.A.

COUNTRY OF INFO--USSR *K.*

SOURCE--ZHURNAL VYSSHEY NERVNOY DEYATEL'NOSTI, 1970, VOL 20, NR 3, PP
529-532

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CEREBRAL CORTEX, BIOPOTENTIAL, CONDITIONED REFLEX,
ELECTROPHYSIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0447

STEP NO--UR/0247/70/020/003/0529/0532

CIRC ACCESSION NO--AP0121121

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0121121

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY WAS MADE ON 58 PRATICALLY HEALTHY SUBJECTS OF EVOKED POTENTIALS (EP) IN THE OCCIPITAL AND CENTRAL PARIETAL AREAS OF THE CEREBRAL CORTEX IN THE PROCESS OF ELABORATION AND EXTINCTION OF MOTOR CONDITIONED REFLEXES TO A PHOTIC STIMULUS. IT HAS BEEN SHOWN THAT DURING POSITIVE CONDITIONING THE TEMPORAL CHARACTERICTICS ARE SHORTENED, THE EARLY EP COMPONENTS ARE DEPRESSED WHILE THE LATE COMPONENTS INCREASE. EXTINCTION RESULTS IN OPPOSITIE SHIFTS OF THE PEAK LATENCIES OF ALL WAVES AND OF THE AMPLITUDE OF LATE COMPONENTS IN COMBINATION WITH A DEPRESSION OF EARLY COMPONENTS. THE DATA OBTAINED ARE DISCUSSED FROM THE VIEWPOINT OF FUNCTIONAL SIGNIFICANCE OF EP. FACILITY: CHAIR OF PSYCHIARTRY, MEDICAL INSTITUTE, VITEBSK.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--IMPARTING COLOR TO COPOLYMER AND FIBERS BASED ON POLYACRYLONITRILE
-U-
AUTHOR--(05)--KOVZHIN, L.A., KIRPICHENKO, T.R., GLAZOMITSKIY, K.L., ROSKIN,
YE.S., KHARKHAROV, A.A. *K*
COUNTRY OF INFO--USSR
SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(1),
109-12
DATE PUBLISHED--70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--DYE, COPOLYMER, POLYACRYLONITRILE FIBER, ACRYLATE, AMIDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/0975 STEP NO--UR/0153/70/013/001/0109/0112
CIRC ACCESSION NO--AP0124634
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124634

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ACRYLONITRILE
METHYLOLMETHACRYLAMIDE COPOLYMER (I) WAS DYED WITH H SUB2 O SOL. DYES
DURING THE COPOLYMN. OF THE RESP. MONOMERS IN AQ. NASCN SOLN. DYED I
EXHIBITED EXCELLENT LIGHT FASTNESS (COMPARABLE TO THAT OBTAINED BY
DYEING POLYMER FIBERS WITH FIBER REACTIVE DYES). THE PHYSICOMECH.
PROPERTIES OF DYED I FIBER WERE ESSENTIALLY UNCHANGED. AN EFFECTIVE
TECHNIQUE WAS DEVELOPED FOR THE RECOVERY OF DYES FROM THE SETTING BATH.
FACILITY: LENINGRAD. INST. TEKST. LEGK. PROM. IM. KIROVA,
LENINGRAD, USSR.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--SYNTHESIS OF ACRYLONITRILE COPOLYMERS CONTAINING REACTIVE
METHYLOLAMIDE GROUPS -U-
AUTHOR--(05)--POPOVA, G.P., KIRPICHENKO, T.R., GLAZOMITSKIY, K.L., GOLTSIN,
B.E., ROSKIN, YE.S.
CCUNTRY OF INFO--USSR
SOURCE--IZV. VYSSH. UCHES. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(2),
259-62
DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC SYNTHESIS, ACRYLONITRILE, COPOLYMER, AMIDE, CHEMICAL
REACTION RATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/0966

STEP NO--UR/0153/70/013/002/0259/0262

CIRC ACCESSION NO--AP0124625

UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124625

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPENDENCES OF (CH SUB2 CHCNH SUB2 CME(CONHCH SUB2 OH) SUBN (I) COMPN., YIELD, AND REACTION RATE ON THE COMPN. OF THE MIXT. OF MONOMERS, ACRYLONITRILE (II) AND N-METHYLGLACRYLAMIDE (III), AND ON REACTION TIME WERE DETD. MONOMER REACTIVITY RATIOS OF II AND III WERE 0.98 PLUS OR MINUS 0.05 AND 2.33 PLUS OR MINUS 0.1, RESP. I WAS ENRICHED IN III COMPARED WITH THE ORIGINAL MONOMER MIXT. COMPN. BUT III WAS SPENT SIGNIFICANTLY FASTER AS COPOLYMN. PROCEEDED. COPOLYMN. RATES WERE HIGH (E.G. CONVERSION AFTER 60 MIN FOR A 95:5 II-III MIXT. WAS 75-80PERCENT) BUT THE RATE DECREASED WITH TIME AND WITH INCREASING III CONCN. IN THE ORIGINAL MONOMER MIXT.

FACILITY: LENINGRAD. INST. TEKST. LEGK. PROM. IM. KIROVA, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 621.762.3(083.8)

POBEGAYLO, G. G., TARNOPOL'SKIY, B. M., and KIRPICHEV, A. D., Institute of Ferrous Metallurgy

"Device for Mixing Powdered Materials"

USSR Authors' Certificate No 272320, Cl. 18a, 1/02 (C 21 b 1/02), filed 23 Mar 68, published 1 Sep 70 (from RZh-Metallurgiya, No 3, Mar 71, Abstract No 3G416P)

Translation: The device for mixing powdered materials in a fluidized bed is a vessel operating under pressure with an aerating grid and piping system. In order to lessen entrainment by spent gas of the materials being mixed, a filtering element is built into the top of the vessel and around it is mounted spiral piping with holes for venting the compressed gas that is fed in to clean the filtering element. One illustration.

1/1

USSR

UDC 547.26'118

KIRPICHEV, P. P., BAL'CHENKO, R. K., KRUGLYAK, YU. L.,
MARTYNOV, I. V.

"Reaction of 1,3,2-Dioxaphospholanes With N-Chloroimidoacetic Esters"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 10, 1971, p 2338

Abstract: For the first time, a study was made of the reactions of 1,3,2-dioxaphospholanes with N-chloroacetimidic ethyl ester. It was shown that the reactions of 2-halo- or 2-alkoxy-1,3,2-dioxaphospholanes (I), with 0-1 alkyl substituents at the 4 and 5 C positions in the ring, gave open-chain phosphoryl compounds resulting from breaking of the C-O bond in the ring. In contrast, the reactions of I, with more than one alkyl substituent in 4 or 5 positions, gave the dioxaphospholane ring compounds and a halo-alkane. The yields and some physical constants of the compounds obtained are given.

1/1

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USSR

UDC 614.72.001.1

KIRPICHEV, V. S.

"Aluminum-Chromium Catalyst for the Afterburning of Noxious Organic Impurities in the Exhaust Gasses"

Kiev, Khimicheskaya Tekhnologiya, No 4 (70), Jul/Aug 73, pp 15-16

Abstract: Laboratory results are reported on deep oxidation catalysts based on Co, Cu, Ni, Cr oxides or their binary mixtures. Active aluminum oxide was used as a carrier. The alumina-chromia catalyst appeared to be the best one, since it was most resistant to overheating which usually destroys their activity. This catalyst has been tried with success on a toluene pilot plant, showing that it can be used as a catalyst for afterburning of organic impurities in the exhaust gasses.

1/1

- 8 -

USSR

UDC 541.124+541.127+661.718.1

CHEBOTAREVA, E. G., POBEDIMSKII, D. G., KOLUBAKINA, N. S., MUKMENEVA, N. A.,
KIRPICHNIKOU, P. A., AKIMADULLINA, A. G., Kazan Chemical Technology Insti-
tute imeni S. M. Kirova

"Kinetics of Reaction of Phosphites With Cumol Hydroperoxide"

Moscow, Russian, Kinetika i kataliz, Vol 14, No 4, Jun-Aug 73, pp 891-895

Abstract: The kinetics were studied and the rate constants determined for the reaction of various aliphatic and aromatic phosphites with cumol hydroperoxide in benzene. The rate constants did not change with a reaction rate change of 4 orders of magnitude, which indicates the absence of kinetic bonds. The reaction was first order with respect to each component. The aromatic phosphites were less reactive than the aliphatic, possibly because of polar effects. Analysis of the data on competition between the phosphite-hydroperoxide reactions and the spontaneous disintegration of hydroperoxides at 200°C in molten polymers indicated that phosphites suppress confluent branching.

1/1

USSR

UDC 542.91+541.6:547.1'118

ANOSHINA, N. P., GOL'DFARB, E. I., VOSKRESENSKAYA, O. V., KIRPICHNIKOV, P. A.,
and MUKHOMOV, E. T., Institute of Organic and Physical Chemistry imeni A. Ye.
Arbuzov, Academy of Sciences USSR, and Kazan' Institute of Chemical Technology
imeni S. M. Kirov.

"Use of the Arbuzov Reaction to Establish the Structure of Tricyclic D-Mannitol
Triethyl Triphosphite"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 72, pp
1390-1395

Abstract: The authors used the Arbuzov reaction to establish the ring size in
tricyclic D-mannitol triethyl triphosphite. A study was made of the reaction
with ethyl bromide of tricyclic triethyl triphosphite and phosphites which model
it, obtained from 1,2; 5,6-di- and 3,4-O-isopropylidene-, as well as 1,3; 4,6-
di- and 2,5-O-methylene-D-mannitols. Differential thermal analysis and ^{31}P -NMR
data indicate that tricyclic D-mannitol triethyl triphosphite represents 2-
ethoxy-4,5-bis-(2'-ethoxy-1',3',2'-dioxaphospholanyl-4')-1,3,2-dioxaphospholane.

1/1

Organophosphorus Compounds

USSR

UDC 547.15:547.451

POBEDIMSKIY, D. G., MUKMENEVA, N. A., and KIRPICHNIKOV, P. A., Kazan' Chemical-Technological Institute Imeni S. M. Kirov

"Reactions of $RO\cdot$, $RS\cdot$, and $RO_2\cdot$ Radicals With Phosphites and Phosphines"

Moscow, Uspekhi Khimii, Vol 41, No 7, Jul 72, pp 1242-1259

Abstract: A review of studies concerned with detailed mechanism and quantitative laws in the kinetics of $RO\cdot$, $RS\cdot$, and $RO_2\cdot$ radical reactions with phosphites and phosphines is given, citing 49 references from the period 1959-1970. Using the method of radioactive tagging, it was shown that the formation of phosphoranyl radical is an irreversible reaction, this being the first intermediate product in such radical reactions. An analysis has been carried out of the competitive reactions between the addition of $RO\cdot$ and $RS\cdot$ radicals to the phosphites and phosphines, and other reactions such as splitting of the H atom from hydrocarbons, addition to double bonds, monomolecular decomposition, etc. The last chapter is devoted to the discussion of the mechanism of inhibitory action of aromatic phosphites during thermooxidative destruction of polyolefine in the frame of the concepts on the termination of kinetic oxidation chain reaction by means of the exchange of radicals.

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USSR

UDC 547.26'118

VERIZHNIKOV, L. V., VOSKRESENSKAYA, O. V., KADYROVA, V. KH.,
KIRPICHNIKOV, P. A., MUKMENOV, E. T., Kazan' Institute of Chemical
Technology imeni S. M. Kirov and Institute of Organic Chemistry
imeni A. YE. Arbuzov, Academy of Sciences USSR

"Arbuzov Isomerization of Cyclic Phosphites Containing a Seven-
or Eight-membered Ring"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 10, 1971, pp 2162-
2164

Abstract: To explore the applicability of the Arbuzov reaction
to the synthesis of cyclic phosphonates with seven- or eight-
membered rings, a study was made of the reactions of certain title
compounds with bromoethane. Heating a cyclic alkyl phosphite,
e.g., O,O'-diphenyl ethyl phosphite, with excess bromoethane in
a sealed ampoule gave a cyclic alkylphosphonate, e.g., O,O'-
diphenyl ethylphosphonate, with a higher mp and relatively more
stable than the starting phosphite. Structure of the prepared
compounds was confirmed by NMR and IR spectra. The elemental
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VERIZHNIKOV, L. V., et al, Zhurnal Obshchey Khimii, Vol 41,
No 10, 1971, pp 2162-2164

analysis data and some physicochemical constants of the synthesized
cyclic phosphonates are tabulated, and the experimental procedures
employed in their preparation are described.

2/2

1/2 024 UNCLASSIFIED
TITLE--STABILIZATION OF POLYCARBONATES -U-

PROCESSING DATE--30OCT70

AUTHOR--(05)--KOVARSKAYA, B.M., KUTRELEV, V.N., KIRPICHNIKOV, P.A.,
LEVANTOVSKAYA, I.I., ITINSKAYA, G.P.
COUNTRY OF INFO--USSR

SOURCE--USSR 264,689

REFERENCE--OTKRYTIYA, IZUBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--03MAR70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--POLYCARBONATE, CHEMICAL STABILIZER, LOW TEMPERATURE EFFECT,
ORGANIC PHOSPHORUS COMPOUND, ARYL PHOSPHINITE, CHEMICAL PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3002/1468

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0120867

UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--30UCT70
CIRC ACCESSION NO--AA0128867
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLYCARBONATES ARE STABILIZED AND
TREATED AT LOW TEMPS. USING 0.1-1 WT. PERCENT POLYPHOSPHINITE STABILIZERS
(I, N EQUALS 5-10).

UNCLASSIFIED

1/2 027 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--PHOSPHOROUS ACID ESTERS AS COLORLESS STABILIZERS OF LOW PRESSURE
POLYETHYLENE -U-
AUTHOR--(05)--KIRPICHNIKOV, P.A., KOLYUBAKINA, N.S., MUKMENEVA, N.A.,
MUKMENEV, E.I., VORKUNOVA, E.I.
COUNTRY OF INFO--USSR
SOURCE--VYSOKOMOL. SOEDIN. SER. B 1970, 12(3), 189-92
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--ORGANIC PHOSPHORUS COMPOUND, CHEMICAL STABILIZER, HETEROCYCLIC
BASE COMPOUND, POLYETHYLENE, ORGANIC SULFUR COMPOUND, ANTIOXIDANT
ADDITIVE, SULFIDE, PHENOL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/0669 STEP NO--UR/0460/70/012/003/0189/0192
CIRC ACCESSION NO--AP0124341
UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--30OCT7

CIRC ACCESSION NO--AP0124341

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ADDN. OF P CONTG. COMPS.,
(RD) SUB3 P (R IS ET, BU, HEXYL, NONYL, PH, OR ISO BUC SUB6 H SUB4), I,
II, OR III (R PRIME IS ISOCTYL), TO LOW PRESSURE POLYETHYLENE (IV) ALS
CONTG. ANTIOXIDANTS (BIS(5,METHYL, 3,TERT,BUTYL,2,HYDROXYPHENYL)
SULFIDE, BIS(5,METHYL,3,TERT,BUTYL,2,HYDROXY) METHANE, OR 2,6 BIS(ALPHA
METHYLBENZYL),4,METHYLPHENOL) INHIBITED COLOR FORMATION DURING HEATING
IV IN AIR AT 190DEGREES OR 200DEGREES. THE P CONTG. COMPS. REACTED
WITH THE RESIDUAL TI CATALYSTS, PREVENTING THEIR COLOR REACTION WITH TH
ANTIOXIDANTS. FACILITY: KAZAN. KHIM. TEKHNOL. INST. IM. KIROVA
KAZAN, USSR.

UNCLASSIFIED

USSR

UDC 542.91+541.6:547.1'118

MUKMENEV, E. T., KIRPICHNTKOV, P. A., and VOSKRESENSKAYA, O. V., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR, and Kazan' Institute of Chemical Technology imeni S. M. Kirov

"Study of the Possibility of the Formation of 7- or 9-Membered Rings in the Molecule of Tricyclic D-Mannitol Triethyl Triphosphite"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 72, pp 1395-1399

Abstract: The authors synthesized model cyclic phosphites based on 1,3; 4,6-di-O-methylene- and 2,5-O-methylene-D-mannitols by the transesterification of triethyl phosphite with the corresponding D-mannitol derivatives. The attempt to synthesize a 7-membered cyclic phosphite based on 1,4-butyleneglycol under the transesterification conditions (110-120°, threefold excess of triethyl phosphite) proved unsuccessful. It was also found impossible to synthesize a 9-membered cyclic phosphite based on 2,3,4,5-di-O-methylene-D-mannitol.

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USSR

UDC 629.78.015.076.8

KIRPICHNIKOV, S. N., Leningrad Institute

"Optimization of Descent Maneuvers for a Space Module in a Near-Planet Orbit"

Leningrad. Mekh. Upravlyayem. Dvizheniya i Probl. Kosmich. Dinamiki--Sbornik (Mechanics of Motion Control and Problems of Space Dynamics--Collection of Works), 1972, pp 5-9 (from Referativnyy Zhurnal--Raketostroyeniye, No 5, May 73, Abstract No 5.41.152)

Abstract: A spacecraft was examined moving in an elliptical orbit in the gravitational field of a spherically symmetrical planet and consisting of two parts: a landing module and a command module. The optimum maneuver for descent of the landing module on the planet was plotted with respect to fuel consumption. The maneuver is accomplished with a single starting impulse, applied to the landing module, such that the command module would continue to move along the original orbit while the descending module would land on the planet surface after transition to the descending trajectory and entry into the dense layers of the atmosphere. The initial spacecraft orbit and trajectory of the descent module, almost up to its entry into the dense atmospheric layers, was calculated as a Kepler orbit whereupon only elliptical orbits of descent were examined with direct movement with respect to the initial orbit. Limitations
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USSR

KIRPICHNIKOV, S. N., *Mekh. Upravlyayem. Dvizheniya i Probl. Kosmich. Dinamiki--Sbornik*, 1972, pp 5-9.

on the entry angles of the landing module into the dense atmospheric layers and on the distance between the modules when the landing module lands were added. The problem of spacecraft launch from a Venus satellite, a probe for studying the upper Venus atmosphere, moving in an elliptical orbit, was examined as an example. 2 tables, 3 bibliographic references.

2/2

USSR

UDC: None

PLAKHOV, A. M., CHERNENKO, O. D., MALKOV, A. I., KOSTYUCHENKO,
V. I., LYSENKO, V. S., SURKOV, N. I., KIRPICHNIKOV, V. A., SMIRNOV,
I. A., and SAVCHENKO, L. I.

"A Device for Ultrasonic Defectoscopy"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obrastysy,
tovarnye znaki, no 4, 1973, p 98, No 363912

Abstract: The distinctive system in this device is one in which the sensor searching for the defects is mounted between rollers fixed to the lower side of the transmitting device, and is thus free to move around the workbench. A diagram of the mechanical arrangement, which improves the productivity of the device and its control, is given.

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USSR

UDC 577.4

DANIL'CHENKO, V. A., KIRPICHNIKOV, V. M.

"Length of an Inspection Test"

V sb. Tekhn. diagnostika (Technical Diagnostics -- collection of works), Moscow, Nauka Press, 1972, pp 194-195 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V424)

Translation: In the example of contact circuits of the disjunctive normal form type a study was made of the dependence of the test length on the nature of repetitions. The upper bound of the test length for two-dimensional systems is presented.

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1/2 CC8 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--EFFECT OF CHLORIDE IONS ON THE REACTION OF HYDROQUINONE WITH COPPER
IONS UNDER ANAEROBIC CONDITIONS -U-
AUTHOR--(02)-KIRPICHNIKOVA, N.P., NALBANDYAN, R.M.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (2), 294-300

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHLORIDE, HYDROQUINONE, COPPER COMPLEX, EPR SPECTRUM, HYDROGEN
ION CONCENTRATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3005/0064

STEP NO--UR/0062/70/000/002/0294/0300

CIRC ACCESSION NO--AP0132359

UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132359

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. UNDER ANAEROBIC CONDITIONS THE PRESENCE OF CL PRIME NEGATIVE IN THE REACTION OF HYDROQUINONE WITH CU PRIME POSITIVE POSITIVE, FOLLOWED BY EPR SPECTROMETRY, AFFECTS THE REACTION COURSE DIFFERENTLY DEPENDING ON CONDITIONS. AT PH 5-6 CU PRIME POSITIVE POSITIVE DO NOT OXIDIZE HYDROQUINONE ALONE BUT WITH NaCl ADDED THE INTENSITY OF THE EPR SIGNAL OF CU PRIME POSITIVE POSITIVE DECLINES AND ACIDITY OF THE SOLN. INCREASES. THUS, CL PRIME NEGATIVE ALLOW CU PRIME POSITIVE POSITIVE TO EFFECT THIS OXIDN. EVIDENTLY THE COMPLEXES CUCL SUB2 AND CUCL SUB3 PRIME NEGATIVE REACT WITH HYDROQUINONE AND YIELD CUCL SUB2 PRIME NEGATIVE, 2H PRIME POSITIVE, AND QUINONE. THE QUINONE AND CU PRIME POSITIVE FORM A COLORED COMPLEX THAT IS STABLE AT PH 3-7. IT WAS SUGGESTED THAT THE ACTION OF CHLORIDES ON ACTIVITY OF CU BEARING OXIDASES MAY BE RELATED TO THE EFFECT DESCRIBED ABOVE. FACILITY: INST. KHIM. FIZ., MCSCOW, USSR.

UNCLASSIFIED

USSR.

UDC 517 944/947

KIRPICHNIKOVA, N. YA.

"Propagation of Surface Waves Concentrated Near Rays in an Inhomogeneous, Arbitrarily-Shaped Elastic Body"

Leningrad, Trudy Ordena Lenina Matematicheskogo Instituta imeni V. A. Steklova, Vol 115, Matematicheskiye Voprosy Teorii Difraktsii i Rasprostraneniya Voln, No 1, 1971, pp 114-130

Abstract: The article considers an inhomogeneous, arbitrarily-shaped elastic body Ω , bounded by a fairly smooth surface S on which there are no stresses. L is a certain ray lying entirely on surface S . The problem is to find the high-frequency asymptotic form of solutions of elasticity theory equations which are concentrated in the neighborhood of the ray L and have the character of waves propagating along L at a velocity close to the velocity $b(x,y,z)$ (the transverse velocity of propagation of elastic waves in Ω). Unlike Love waves, which also possess the above-mentioned properties, the requirement is introduced that particle displacement inside the body Ω in a zero approximation be parallel to the plane of the normal section of the surface S along the ray L .

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USSR

KIRPICHNIKOVA, N. YA., Trudy Ordena Lenina Matematicheskogo Instituta imeni V. A. Steklova, Vol 115, Matematicheskiye Voprosy Teorii Difraktsii i Rasprostraneniya Voln, No 1, 1971, pp 114-130

The displacement vector u of the elastic medium is found in the form of the sum of the longitudinal u_a and transverse u_b waves which satisfy the conditions of no stress on the boundary. The results show that the longitudinal wave decreases at once as it recedes from the boundary deep into the body. The transverse wave, however, is concentrated in a certain surface body waveguide near the ray L . Its behavior in the surface layer corresponds to eigenfunctions of the "whispering gallery" type.

Inside the body Ω the transverse waves u_b are asymptotically determined. These waves are like Love waves, but the particle displacement occurs mainly in the direction of the normal to the boundary S . The order of the longitudinal and transverse waves on the surface S is the same. Particle displacement for both the u_a waves and u_b waves is parallel to the

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USSR.

KIRPICHNIKOVA, N. YA., Trudy Ordena Lenina Matematicheskogo Instituta imeni V. A. Steklova, Vol 115, Matematicheskiye Voprosy Teorii Difraktsii i Rasprostraneniya Voln, No 1, 1971, pp 114-130

plane of the normal surface section corresponding to the ray L -- a property which makes these waves comparable to Rayleigh waves.

The resultant asymptotic form is a generalization of the corresponding solutions obtained by I. V. MUKHINA and I. A. MOLOTKOV for the case of an inhomogeneous, arbitrarily-shaped elastic body, but here the longitudinal and transverse components of vector u , as functions of the variable α , resemble eigenfunctions of the "bouncing ball" type.

The author thanks his scientific mentor Professor V. M. BABICH for formulating the problem and for his assistance and guidance.

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USSR

UDC 536.244

KIRPIKOV, V. A., Candidate of Technical Sciences, and TROFIMOV, YU. S.,
Graduate Student

"Investigation of the Heat Exchange and Resistance of a Channel With a System
of Standing Vortices"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Mashinostroyeniye, pp 89-93

Abstract: Experimental results are presented on heat exchange and resistance during the motion of air around a channel formed by the combination of a smooth surface and a complexly profiled surface with an alternating sequence of traps and effusers, in the range of $Re = (6 - 80) \text{ times } 10^3$. In the vortex traps, standing vortices are formed which for the stream perform the function of rollers of unique kind, and which bring about a decrease of vortex formation and, consequently, a decrease of energy dissipation downstream. Three figures, seven references.

1/1

USSR

UDC 547.26'118

KADYROVA, V. KH., KIRPUCHNIKOV, P. A., MUKHOMENOVA, N. A.; GREN, G. P., and KOLYUBAKINA, N. S., Kazan' Institute of Chemical Technology imeni S. M. Kirov

"New Thermostable Phosphite Esters"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 8, Aug 71, pp 1688-1691

Abstract: A study of the synthesis of phosphite esters possessing increased hydrolytic and thermal stability showed that such phosphites can be obtained by condensation of various bisphenols with trivalent phosphorus derivatives. The thermostability of the synthesized compounds was studied by the differential thermal analysis method using a derivatograph of the F. PAULIK-J. PAULIK-L. ERDEY System. It was found that thermal decomposition begins only at temperatures above 300°.

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USSR

UDC 546.185

KUKHAR', V. P., PAVLENKO, N. G., and KIRSANOV, A. V., Institute of Organic Chemistry, Academy of Sciences, Ukrainian SSR

"Phosphorylation of the Derivatives of Tricyanomethane"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 9, Sep 73, pp 1896-1900

Abstract: Phosphorus pentachloride reacts with the sodium salt of tricyanomethane in chloroform at 20° forming sodium chloride and 1-phosphazo-1-chloro-2,2-dicyanoethylenes (I) -- colorless crystalline compounds soluble in most organic solvents except for hexane and carbon tetrachloride. The same products (I) can also be obtained from the reaction of tricyanomethane halides with triphenylphosphine and phosphorus trichloride. The silver salt of tricyanomethane reacted with 1-amino-1-chloro-2,2-dicyanoethylene and phosphorus pentachloride give a mixture of 1-trichlorophosphazo-1-chloro-2,2-dicyanoethylene and 2,2,4,6-tetrachloro-5-cyano-1,3-diaza-2-phosphorene.

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USSR

UDC 547.419.1

YURCHENKO, P. I., ZHMUROVA, I. N., SHPARTUN, L. N., and KIRSANOV, A. Y.,
Institute of Organic Chemistry, Academy of Sciences, Ukraine in SSR

"The Auxochromic Effect of the Triphenylphosphinomethylene Group"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 11, 1972, pp 2354-2359

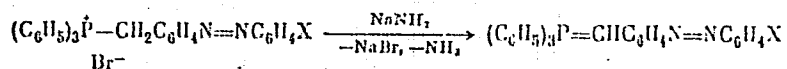
Abstract: The wave length of maximum absorption -- in the range of 400-600 nanometers -- was measured for azobenzenes of the general formula 4,4'-YC₆H₄N=NC₆H₄X in acetonitrile benzene and heptane. Y groups generally had the form of (CH₃)₂N and various triphenylphosphine groups. The X groups were generally hydrogen or organic acids. The synthesis is given for several of these compounds not previously reported in the literature. For the Y group (C₆H₅)₃P=N the wave length of maximum absorption was slightly higher than or equal to compounds containing the Y group (CH₃)₂N; however, λ_{max} for both of these groups is significantly less than for the (C₆H₅)₃P=CH group. The wave length of maximum absorption was also determined for a series of azostilbenes of the form YC₆H₄CH=CHC₆H₄N=NC₆H₄X.

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YURCHENKO, P. I., et al., Zhurnal Obshchey Khimii, Vol 42(104), Vyp 11, 1972, pp 2354-2359

These compounds can be prepared from the corresponding azobenzene as follows:



The λ_{max} for the azostilbenes is in general about 20 nanometers longer than the λ_{max} for the corresponding azobenzene. Preparative procedures and physical data are given.

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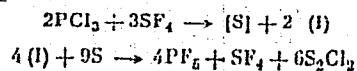
UDC 546.185

MARKOVSKIY, L. N., STUKALO, YE. A., and KIRSANOV, A. V., Institute of Organic Chemistry, Academy of Sciences Ukraine SSR

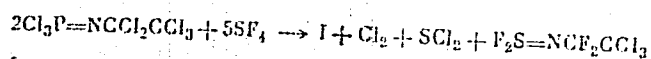
"The Reaction of Phosphorus Chlorides with Tetrafluorosulfur"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 11, 1972, pp 2581-2582

Abstract: The title reaction occurs in the following manner.



Product (I) can also be obtained by the reaction of SF_4 with PCl_3 . The reaction of phosphorus oxychloride with SF_4 in a 1:2 ratio results in the formation of SOF_2 and (I). The reaction of trichlorophosphazoperchloroethane reacts with SF_4 with the formation of (I) and N-substituted fluoros iminothionyles as follows



Physical properties are given for compound (I).

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USSR

UDC 546.185

ZHMUROVA, I. N., YURCHENKO, R. I., YURCHENKO, V. G., TUKHAR', A. A., and
KIRSANOV, A. V., Institute of Organic Chemistry, Academy of Sciences Ukraine SSR

"Electrophillic Constants (σ^+) of Phosphazo Groups"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 4, 1972, pp 779-785

Abstract: Correlation equations between U_{\max} of para-disubstituted benzenes XC_6H_4Y -- where X is a fluctuating donor and Y is a stable acceptor -- and the electrophillic constants of the X group may be used to calculate the σ^+ of new electron-donor groups. This linear relationship between U_{\max} and σ^+ was determined for benzaldehydes, acetophenones, nitrobenzenes, azobenzenes, and nitroazobenzenes in ethanol, acetonitrile, heptane, hexane, and isooctane. The σ^+ values of the phosphazo group were determined from these. Data on both U_{\max} and σ^+ are given in four tables and a graph. The change in the electronic configurations of groups in the phosphorus atom had little influence on the σ^+ .

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USSR

UDC 547.419.1

ZHMUROVA, I. N., YURCHENKO, R. I., KUKHAR', V. P., ZOLOTAREVA, L. A., and
KIRSANOV, A. V., Institute of Organic Chemistry, Academy of Sciences, Ukrainian
SSR

"Protonation of Triphenylphosphazobenzene. II. Effect of Substituents on
the Position of Tautomeric Equilibrium"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 9, Sep 72, pp 1954-1959

Abstract: Tautomeric equilibrium in the solutions of 4-triphenylphosphazobenzene salts depends on the concentration of acid as well as on the electronic nature of the substituents at 4'-position. The differences in absorption maxima in neutral and acid media and the basicity constants of 4-triphenylphosphazobenzene can be correlated with the σ^- constants of 4'-substituents.

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USSR

UDC 547.26'118

SHOKOL, V. A. KOZHUSHKO, B. N., DOROSHENKO, V. V., and KIRSANOV, A. V.

"Reaction of Dichloromethyl Isocyanate with Triethylphosphite"

Leningrad, Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, pp 12-15

Abstract: It was found previously that on interaction of chloromethyl isocyanate with trialkyl phosphites, dialkoxyphosphonil methylisocyanates are obtained [V. A. Shokol, et al., ZhCKh, No 40, 1458, 1970]. In the current experiment on interaction of dichloromethylisocyanate with triethylphosphite, depending on the ratio of the reagents, diethoxy phosphonyl chloromethyl isocyanate or bis(diethoxyphosphonyl)methylisocyanate is formed. The reactions and views described for five of these compounds: 1) diethoxy phosphonylchloromethyl isocyanate, 2) bis(diethoxyphosphonyl)methyl isocyanate, 3) N-diethoxyphosphonylmethylene- ρ' - ρ -chlorophenyl urea, 4) N-bis(diethoxyphosphonylmethyl- ρ' -phenyl urea, 5) N-bis(diethoxyphosphonyl)methyl-N'-n-chlorophenyl urea.

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USSR

UDC 547.412

KUKHAR', V. P., KASHEVA, T. N., and KIRSANOV, A. V.

"Reaction of Trichlorophosphazoperchloro Ethane with Aryl Amines and Their Hydrochlorides"

Leningrad, Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, pp 22-25

Abstract: Hydrochloride salts of aromatic amines and free aromatic amines with $pK_a < 2$ react with trichlorophosphazo perchloro ethane on the

α -dichloromethylene group with the formation of trichlorophosphazo-N-aryl iminotrichloro acetyls. On interaction of trichlorophazo perchloro ethane with aryl amines in a 1:4 ratio, tris(arylamino)phosphazo-N-arylimino trichloroacetyls are formed. Some of the physical properties, the yields and formulas of these compounds are tabulated, and the experimental procedures for obtaining five of them are outlined.

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USSR

UDC 547.558.1

SHEPANEK, A. S., ZASORINA, V. A., and KIRSANOV, A. V.

"Derivatives of Triphenyl Phosphazo Sulfuric Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, pp 25-29

Abstract: The derivatives of phosphazo sulfuric acid [A. V. Kirsanov, Izd. AN SSSSR, OKhN, 426, 1950; ZhOKh, No 22, 81, 88, 1346, 1952; A. Vandi, et al., Chem. Ind. 221, 1962], including triphenyl phosphazo sulfuric acid [A. Vandi, et al., Chem. Ind., 221, 1962; R. Appel, et al., Z. anorg. Chem., No 311, 290, 1961] have been studied very little. In continuing the studies of acylation of triphenyl phosphazo hydride [A. S. Shepanek, et al., ZhOKh, No 39, 1475, 1969], the authors obtained the acid chloride of triphenyl phosphazo sulfuric acid which is the initial material for synthesizing the greatest variety of derivatives of triphenyl phosphazo sulfuric acid. On reacting triphenyl phosphazo hydride with sulphuryl chloride, depending on the ratio of the reagents, the acid chloride of triphenyl phosphazo sulfuric acid or bistrithenylphosphazo sulfone is obtained. The acid chloride of triphenyl phosphazo sulfuric acid easily reacts with alcohols, ammonia, primary and secondary amines, hydrazine and sodium azide and gives the corresponding derivatives.

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USSR

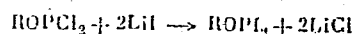
UDC 547.26⁰118

FESHCHENKO, N. G., KOSTINA, V. G., and KIRSANOV, A. V.

"Aroxy and Alkoxydiiodo Phosphines"

Leningrad, Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, pp 209-210

Abstract: Aroxy and alkoxydiiodo phosphines were synthesized by the interaction of solutions of aroxy and alkoxy dichlorophosphines with lithium iodide in carbon tetrachloride or hexane at -10 to -20⁰.



The aroxy and alkoxy diiodophosphines are light yellow or light brown liquids which fume in the air, are stable at -50 to -60⁰ in the absence of oxygen, decompose very slowly at -20⁰ and very rapidly at 0⁰.

An experimental procedure for obtaining the two compounds is given.

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USSR

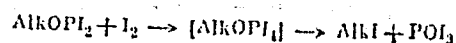
UDC 546.152+546.185

KOSTINA, V. G., FESHCHENKO, N. G., and KIRSANOV, A. V.

"Phosphorus Oxyiodide, POI_3 "

Leningrad, Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, p 209

Abstract: Phosphorus oxyiodide was obtained by the interaction of alkoxydiodophosphines (N. G. Feshchenko, et al., ZhOKH, Vol 43, No 1, 1973) with iodine in carbon tetrachloride or hexane



The physical and chemical properties of the material are described. Phosphorus oxyiodide was also obtained with a yield of about 16% of interaction of phosphorus oxychloride with lithium iodide in a benzene solution.

On interaction of alkoxydiodophosphines with iodine in the absence of solvents, ethyl and propyl iodides were isolated and identified with yields of 81.8 and 82%; the yields of phosphorus oxyiodide in these cases are almost quantitative, but the product is contaminated with iodine and has a low melting point. The yield of the phosphorus oxyiodide is about 85% in the product.

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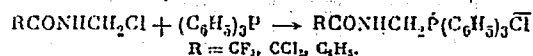
UDC 547.241

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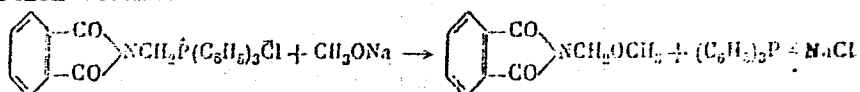
"Reaction of the N-chloromethylamides of Acids With Triphenylphosphines"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 4, 1972, pp 953-954

Abstract: N-chloromethylamides reacts with triphenylphosphines according to the following reaction:



If the phosphonium salt from the above reaction is treated with triethylamine in a dioxane solution, the hydrochloride but not the phosphinomethylene is formed. If the phosphonium salt has no H on the N, i.e., a tertiary N, the following reaction occurs:



The bromine salt reacts in an analogous manner.

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UDC 546.185

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"Effect of the Substituents at the Phosphorus Atom on the Auxochromic Action of
the Phosphazo Group. II"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 9, Sep 72, pp 1948-1953

Abstract: On the basis of a series of phosphazobenzenes and phosphazobenzene
it was shown that introduction of electron donor substituents onto phenyl radi-
cals of the triphenylphosphazo group had practically no effect on its auxochromic
action.

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"Effect of the Substituents at the Phosphorus Atom on the Auxochromic Action of the Phosphazo Group. I"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 9, Sep 72, pp 1944-1948

Abstract: On the basis of a series of phosphazobenzenes it was shown that an increase or decrease in the electron donor effect of the substituents at the phosphorus atom has practically no effect on the auxochromic action of the phosphazo group.

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UDC 547.241'341

"Derivatives of β -Chloroalkyl- and Alken-1-ylphosphonic and Thiophosphonic
Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 3, Mar 73, pp 538-543

Abstract: Heating β -chloroalkylphosphonic acids with sodium in octane yields monosodium salts of these acids which upon solution in water split along the C-P bond. Alkoxylation of β -chloroalkylthiophosphonic acid dichlorides with alcohols in presence of acrylonitrile yields diesters of β -chloroalkylthiophosphonic acids, while alkoxylation with sodium alkoxides -- the diesters of alken-1-ylthiophosphonic acids. Amidation of β -chloroalkylphosphonic acid dichlorides with aliphatic amines produces diamides of alken-1-ylphosphonic acids, and the use of aromatic amines leads to the formation of the diamides of β -chloroalkylphosphonic acids. The reaction of triethylamine with β -chloroalkylthiophosphonic acid dichlorides yields the dichlorides of alken-1-ylphosphonic and alken-1-yl-thiophosphonic acids.

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"Hydrogenation of Organophosphorus Compounds. Part V"

Leningrad, Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 1944-1950

Abstract: This paper is one of a series of investigations on the hydrogenation of organophosphorus compounds containing aromatic radicals. It is shown that mixed oxides of tertiary phosphines, phosphinic and phosphonic acids as well as phosphoric acid amides with phenyl and benzyl radicals will be hydrogenated in the presence of a platinum catalyst to form corresponding compounds with cyclohexyl and cyclohexylmethyl radicals; the phosphoric acid amides will be hydrogenated at a higher rate (at room temperature) than oxides and acids. Unlike the initial compounds, all hydrogenated products featured lower melting points and higher solubilities in ordinary organic solvents. When treated with phosphorus pentachloride, bis(cyclohexylmethyl) phosphinic acids form their acid chlorides -- readily mobile liquids, distillable under vacuum. When treated with propylmagnesium iodide, bis(cyclohexylmethyl) phosphinic acids form an oxide of propylbis(cyclohexylmethyl) phosphine which is identical to the hydrogenation product of

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ZHURAVLEVA, L. P., et al., Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 1944-1950

propyldibenzylphosphine oxide. The experimental section of this paper is presented in great detail and includes tables citing yields, melting points, solvents for crystallization, formulas, solubilities and other indicators for phosphoric acid trialkylamides $(RNH)_3PO$, phosphoric acid tris(cyclohexyl)amides $(RNH)_3PO^a$ and other related compounds.